

WHAT IS CLAIMED IS:

1. A coding data size training apparatus comprising:

a training coding data generation unit which generates training coding data by coding training data by a predetermined coding method; and

a neural network training unit which inputs the training data to an input layer of a neural network, and inputs the size of the training coding data to an output layer of the neural network so that the neural network is trained.

2. A coding data size selection apparatus comprising:

a coding data estimation size receiving unit which inputs predetermined data to a neural network whose training is finished, and receives an estimation size of coding data corresponding to the predetermined data from the neural network; and

an estimation size selection unit which receives a user selection regarding the estimation size received by the coding data estimation size receiving unit.

3. The apparatus of claim 2, further comprising:

a coding data generation unit which, if the estimation size is selected by the user, generates coding data by encoding data corresponding to the selected estimation size by a coding method.

4. A parallel variable length coding bitstream length training apparatus comprising:

a training quantization DCT coefficient block generation unit which generates a training DCT coefficient block by a DCT of training video data, and generates a training quantization DCT coefficient block by quantizing the generated training DCT coefficient block with a training quantization parameter;

a training bitstream generation unit which generates a training bitstream, by variable length coding a training quantization DCT coefficient block generated in the training quantization DCT coefficient block generation unit; and

a parallel neural network training unit which inputs the training quantization DCT coefficient block to input layers of a predetermined number of neural networks arranged in parallel, and inputs the length of the training bitstream to output layers of the predetermined number of neural networks so that the predetermined number of neural networks are trained.

5. The apparatus of claim 4, wherein the training video data comprise an arbitrary video sequence, in which if the training video data are DCT transformed, a DCT coefficient block having a variety of values is generated.

6. A coding data size selection method comprising:

(a) inputting predetermined data to a neural network whose training is finished, and receiving the estimation size of coding data corresponding to the predetermined data from the neural network; and

(b) receiving a user selection about the received estimation size.

7. The method of claim 6, further comprising:

(c) if the estimation size is selected by the user, generating coding data by encoding data corresponding to the selected estimation size by a coding method.

8. A variable length coding bitstream length training method comprising:

(a) generating a training DCT coefficient block by a DCT of training video data, and generating a training quantization DCT coefficient block by quantizing the generated training DCT coefficient block with a training quantization parameter;

(b) generating a training bitstream by variable length coding the generated training quantization DCT coefficient block; and

(c) inputting the generated training quantization DCT coefficient block to an input layer of the neural network and inputting the length of the generated training bitstream to an output layer of the neural network.

9. A parallel variable length coding bitstream length training method comprising:

(a) generating a training DCT coefficient block by a DCT of training video data, and generating a training quantization DCT coefficient block by quantizing the generated training DCT coefficient block with a training quantization parameter;

(b) generating a training bitstream by variable length coding the generated training quantization DCT coefficient block; and

(c) inputting the generated training quantization DCT coefficient block to input layers of a predetermined number of neural networks arranged in parallel, and inputting a length of the generated training bitstreams to output layers of the predetermined number of neural networks so that the predetermined number of neural networks are trained.

10. The method of claim 9, wherein the training video data comprise an arbitrary video sequence, in which if the training video data are

DCT transformed, a DCT coefficient block having a variety of values is generated.

11. The method of claim 9, wherein the neural network is a 2-layered MLP.

12. A parallel variable length coding bitstream length selection method comprising:

(a) inputting a predetermined number of quantization DCT coefficient blocks in parallel to each of a predetermined number of neural networks whose training is finished, quantization DCT coefficients being obtained by quantizing a predetermined number of DCT coefficient blocks with a predetermined number of quantization parameters, and receiving estimation lengths of a predetermined number of bitstreams corresponding to the predetermined number of quantization DCT coefficient blocks from each of the neural networks; and

(b) receiving a user selection regarding the predetermined number of the received estimation lengths.

13. The method of claim 12, further comprising:

(c) if any one of the predetermined number of estimation lengths is selected by the user, generating a bitstream by variable length coding a

quantization DCT coefficient block corresponding to the selected estimation length.

14. The method of claim 12, wherein the neural network is a 2-layered MLP.

15. A video data compression method comprising:

(a) generating a DCT coefficient block by a DCT of predetermined video data;

(b) generating a quantization DCT coefficient block by quantizing the generated DCT coefficient block, with a predetermined quantization parameter;

(c) inputting the generated quantization DCT coefficient block to a neural network whose training is finished, receiving an estimation length of a bitstream corresponding to the quantization DCT coefficient block from the neural network, and receiving a user selection about the received estimation length; and

(d) if the estimation length is selected by the user, generating a bitstream by variable length coding a quantization DCT coefficient block corresponding to the selected estimation length.

16. A computer readable medium having embodied thereon a computer program for a coding data size selection method,

wherein the coding data size selection method comprises:

(a) inputting predetermined data to a neural network whose training is finished, and receiving an estimation size of coding data corresponding to the predetermined data from the neural network; and

(b) receiving a user selection about the received estimation size.

17. A computer readable medium having embodied thereon a computer program for a variable length coding bitstream length training method,

wherein the variable length coding bitstream length training method comprises:

(a) generating a training DCT coefficient block by a DCT of training video data, and generating a training quantization DCT coefficient block by quantizing the generated training DCT coefficient block with a training quantization parameter;

(b) generating a training bitstream by variable length coding the generated training quantization DCT coefficient block; and

(c) inputting the generated training quantization DCT coefficient block to an input layer of the neural network and inputting the length of the generated training bitstream to an output layer of the neural network.

18. A computer readable medium having embodied thereon a computer program for a parallel variable length coding bitstream length training method,

wherein the parallel variable length coding bitstream length training method comprises:

(a) generating a training DCT coefficient block by a DCT of training video data, and generating a training quantization DCT coefficient block by quantizing the generated training DCT coefficient block with a training quantization parameter;

(b) generating a training bitstream by variable length coding the generated training quantization DCT coefficient block; and

(c) inputting the generated training quantization DCT coefficient block to input layers of a predetermined number of neural networks arranged in parallel, and inputting a length of the generated training bitstreams to output layers of the predetermined number of neural networks so that the predetermined number of neural networks are trained.

19. A computer readable medium having embodied thereon a computer program for a video data compression method,

wherein the video data compression method comprises:

(a) generating a DCT coefficient block by a DCT of predetermined video data;

(b) generating a quantization DCT coefficient block by quantizing the generated DCT coefficient block with a predetermined quantization parameter;

(c) inputting the generated quantization DCT coefficient block to a neural network whose training is finished, receiving an estimation length of a bitstream corresponding to the quantization DCT coefficient block from the neural network, and receiving a user selection about the received estimation length; and

(d) if the estimation length is selected by the user, generating a bitstream by variable length coding a quantization DCT coefficient block corresponding to the selected estimation length.